

University of Colorado Law School

## Colorado Law Scholarly Commons

---

Water Quality Control: Integrating Beneficial Use  
and Environmental Protection (Summer  
Conference, June 1-3)

---

1988

6-2-1988

### Federal Groundwater Quality Control: Law and Policy

Robert L. Glicksman

Follow this and additional works at: <https://scholar.law.colorado.edu/water-quality-control-integrating-beneficial-use-and-environmental-protection>



Part of the [Administrative Law Commons](#), [Environmental Health and Protection Commons](#), [Environmental Law Commons](#), [Environmental Monitoring Commons](#), [Environmental Policy Commons](#), [Legislation Commons](#), [Litigation Commons](#), [Natural Resources Law Commons](#), [Natural Resources Management and Policy Commons](#), [Property Law and Real Estate Commons](#), [Water Law Commons](#), and the [Water Resource Management Commons](#)

---

#### Citation Information

Glicksman, Robert L., "Federal Groundwater Quality Control: Law and Policy" (1988). *Water Quality Control: Integrating Beneficial Use and Environmental Protection (Summer Conference, June 1-3)*.  
<https://scholar.law.colorado.edu/water-quality-control-integrating-beneficial-use-and-environmental-protection/10>

Reproduced with permission of the Getches-Wilkinson Center for Natural Resources, Energy, and the Environment (formerly the Natural Resources Law Center) at the University of Colorado Law School.



William A. Wise Law Library  
COLORADO **LAW**  
UNIVERSITY OF COLORADO **BOULDER**



Getches-Wilkinson Center Collection

Robert L. Glicksman, *Federal Groundwater Quality Control: Law and Policy*, in *WATER QUALITY CONTROL: INTEGRATING BENEFICIAL USE AND ENVIRONMENTAL PROTECTION* (Natural Res. Law Ctr., Univ. of Colo. Sch. of Law 1988).

Reproduced with permission of the Getches-Wilkinson Center for Natural Resources, Energy, and the Environment (formerly the Natural Resources Law Center) at the University of Colorado Law School.

**FEDERAL GROUNDWATER QUALITY CONTROL  
LAW AND POLICY**

**Robert L. Glicksman  
Professor of Law  
University of Kansas  
School of Law**

**WATER QUALITY CONTROL: INTEGRATING  
BENEFICIAL USE AND ENVIRONMENTAL PROTECTION**

**Ninth Annual Summer Program  
Sponsored by the Natural Resources Law Center  
University of Colorado  
School of Law**

**June 1-3, 1988**



# FEDERAL GROUNDWATER QUALITY CONTROL LAW AND POLICY

Robert L. Glicksman

## I. Introduction

### A. Summary

Over the last 20 years, Congress has enacted a remarkable number of statutes authorizing regulation of activities with the potential to contaminate groundwater. In the aggregate, the existing body of federal groundwater quality law is voluminous. But this body of law amounts to less than it appears to. Unlike other environmental media like air and surface water, groundwater is not addressed by a single federal law whose primary purpose is to protect groundwater quality. The resource is instead protected piecemeal by a series of statutes and regulations sometimes designed to protect other resources. To the extent that federal programs do address groundwater quality directly, they often conflict with one another or leave significant gaps in regulatory coverage. The Environmental Protection Agency's attempts to coordinate federal efforts at preventing groundwater pollution have failed to remedy the problem created by the absence of a unified federal groundwater quality law.

This outline first addresses the characteristics of groundwater that make regulatory efforts designed to protect this resource more difficult than similar protective efforts for surface water. The second part of the outline reviews a series of federal laws bearing on groundwater quality protection, emphasizing the deficiencies of each and the difficulties presented in trying to coordinate them into a unified federal program. In its third part, the outline assesses EPA's efforts to provide such coordination through its 1984 Ground-Water Protection Strategy. The final part discusses three different forms of pending legislation designed to amplify federal protection of groundwater quality and evaluates the prospects for enactment of each kind of legislation.

### B. General References

#### 1. Groundwater Pollution Generally

Office of Technology Assessment, "Protecting the Nation's Groundwater From Contamination" (1984) (OTA-0-233);

R. PATRICK, E. FORD & J. QUARLES, GROUNDWATER CONTAMINATION IN THE UNITED STATES (2d ed. 1987);

UNITED STATES GEOLOGICAL SURVEY, NATIONAL WATER SUMMARY 1984: HYDROLOGIC EVENTS, SELECTED WATER-QUALITY TRENDS, AND GROUND-WATER RESOURCES (1985).

2. Federal Groundwater Quality Law

Dycus, Development of a National Groundwater Protection Policy, 11 BOSTON COLLEGE ENVIRONMENTAL AFFAIRS L. REV. 211 (1984);

ENVIRONMENTAL LAW INSTITUTE, LAW OF ENVIRONMENTAL PROTECTION, Vol. 2, Ch. 13 (S. Novick ed. 1987);

Environmental Protection Agency, Ground-Water Protection Strategy (August 1984);

Getches, Controlling Groundwater Use and Quality: A Fragmented System, 17 NATURAL RESOURCES LAW. 623 (1985);

Gilbert, Groundwater Contamination: Pollutants, Priorities, and the Pursuit of Sensible Regulation, 32 ROCKY MT. MINERAL L. INST. Ch. 2 (1986);

Glicksman & Coggins, Groundwater Pollution I: The Problem and the Law, 35 UNIV. OF KANSAS L. REV. 75 (1986);

Tripp & Jaffe, Preventing Groundwater Pollution: Toward a Coordinated Strategy to Protect Critical Recharge Zones, 3 HARVARD ENVTL. L. REV. 1 (1979).

II. Background

A. The Nature and Extent of the Problem

1. Groundwater accounts for 96 percent of all fresh water available to meet national needs.
  - a. The volume of the nation's groundwater resources is vast: groundwater supplies are estimated to be about 50 times greater than surface water supplies.
  - b. About one-half of the country's population, and 97 percent of those living in rural areas, rely on groundwater for drinking and other household needs.
  - c. Groundwater is also used extensively for irrigation (70 percent of all water used for this purpose is

groundwater), livestock watering, and industrial supply purposes (about one-quarter of supply is groundwater).

- d. Demand for groundwater is growing. Withdrawals have tripled over the last 30 years to about 90 billion gallons per day.

2. Our knowledge of the scope of the groundwater pollution problem is limited.

- a. Many experts believe that only about 1 to 2 percent of existing supplies are already polluted.
- b. The problem may be far worse, though, due to the difficulty of detecting contamination.
- c. Even if it is not, the potential for far more widespread contamination is clear from anecdotal evidence.
- d. Examples of groundwater pollution have been reported in every state, and the frequency of reported pollution incidents is increasing.
- e. Thousands of private water supply wells and public water supply systems have been abandoned due to contamination.
- f. More than 175 organic chemicals and 50 inorganic elements have been detected, some of which are known or suspected carcinogens or may cause gastrointestinal illness; eye and skin irritation; central nervous system, liver, and kidney damage; and genetic mutations and birth defects.

3. Until fairly recently, groundwater pollution attracted relatively little attention. As the Environmental Protection Agency (EPA)

noted in its August 1984 Ground-Water Protection Strategy [hereinafter cited as EPA Strategy], "[p]eople concerned themselves only rarely with ground water since, hidden from view as it is, few knew or really understood how seriously the resource was being compromised." Id. at 2.

4. What little attention was paid to the issue was for the most part piecemeal and driven by events. Accordingly, proposed solutions were similarly narrow in scope.

5. Many people labored under the misapprehension that groundwater pollution would correct itself through filtration of contaminants by surrounding soil.

6. It is now clear that the problem has existed for some time, even if we did not recognize it, and that it will not go away by itself. Rather, a far-reaching effort to address the degradation of groundwater quality is necessary.

a. Congressional committees have deemed the groundwater quality problem to be "an issue of national concern," H.R. REP. NO. 155, 100th Cong., 1st Sess. (1987), pt. 2, at 10, whose "urgency" is increasing. Id., pt. 5, at 13.

b. In 1984, EPA agreed that "ground-water contamination looms as a major environmental issue of the 1980's," EPA Strategy, at 2, although a recent EPA report, "Unfinished Business," inexplicably referred to problems associated with groundwater pollution as a "low priority concern."

B. Why Groundwater Pollution Problems Are Generally More Difficult to Detect and Resolve Than Surface Water Problems



1. "[I]nformation about groundwater quality, and about the role of groundwater in the hydrologic cycle, has lagged far behind our knowledge of water in the atmosphere and on the surface." H.R. REP. NO. 155, 100th CONG., 1st Sess. (1987), pt. 4, at 17.
  - a. According to the National Academy of Sciences, adequate data is not available to estimate the extent or impact of ground water contamination.
  - b. Even where information has been accumulated, it has not been widely disseminated to either policy-making officials or those responsible for operating potential contamination sources.
2. The absence of an adequate technical foundation for protecting groundwater quality stems in large part from its location. Groundwater "is an unseen resource. Groundwater pollution [historically has been] out of sight, and out of mind." CONG. REC. H 10825 (daily ed. Dec. 2, 1987) (remarks of Rep. Roe). Groundwater pollution is therefore harder to detect than surface water pollution.
  - a. Groundwater generally moves much more slowly than surface water and it moves in plumes. Contamination is frequently highly concentrated.
  - b. As a result, ambient monitoring in one part of an aquifer may fail to detect contamination only a few feet away. "The vastness of the ... resource makes the cost of significant ambient monitoring prohibitive." EPA Strategy, at 16.

3. Lack of ready access also makes it more expensive to clean up groundwater than surface water pollution, and the lack of access to sunlight increases the persistence of contamination. Moreover, even if the resource is accessible, clean up may be technologically impossible. According to Senator Durenberger, "no one has ever restored a contaminated aquifer to its original condition." Thus, contaminated aquifers may be doomed to remain that way for millennia.
4. The difficulties of detecting and cleaning up groundwater contamination make it imperative to prevent it. But the preventive task is hardly an easy one. There are far more potential sources of groundwater than surface water pollution.
  - a. Under the Clean Water Act, EPA and the states have issued about 60,000 discharge permits.
  - b. There are millions of potential sources of groundwater pollution, including 17-20 million septic tanks, 2-4 million underground storage tanks, 2 million miles of pipelines, and thousands of oil and gas wells, landfills, and surface impoundments.
5. In short, "[g]roundwater protection forces regulators to design strategies to control largely unknown types and numbers of sources in order to control largely unknown problems." Gilbert, Groundwater Contamination: Pollutants, Priorities, and the Pursuit of Sensible Regulation, 32 ROCKY MT. MIN. L. INST. 2-7 (1987).

### III. Current Federal Laws Affecting Groundwater Quality

A. The Clean Water Act (33 U.S.C. §§ 1251 to 1376, amended by Pub. L. No. 100-4 (1987)).

1. Although both the language and legislative history of the CWA can be interpreted to support the claim that Congress intended to cover groundwater, see W. RODGERS, ENVIRONMENTAL LAW: AIR AND WATER, vol. 2, § 4.8A (1986); Dycus, Development of a National Groundwater Protection Policy, 11 B.C. ENVTL. AFF. L. REV. 211, 238 (1984), the Act's application to groundwater pollution has been limited. See generally, Glicksman & Coggins, Groundwater Pollution I: The Problem and the Law, 35 U. KAN. L. REV. 75, 95-101 (1986).
2. EPA has never issued effluent limitations for point sources of groundwater pollution, and it abandoned its attempts to control waste disposal into wells at a point source also discharging into surface water after a court ruled that it lacked the authority to do so. Exxon Corp. v. Train, 554 F.2d 1310 (5th Cir. 1977). Other courts, both before and after, have interpreted the agency's authority more broadly. See, e.g., Quivira Mining Co. v. EPA, 765 F.2d 126 (10th Cir. 1985), cert. denied, 106 S. Ct. 791 (1986); United States Steel Corp. v. Train, 556 F.2d 822 (7th Cir. 1977).
3. Nor has EPA issued groundwater quality criteria or required states to issue groundwater quality standards, despite apparent authority in both areas. See 33 U.S.C. §§ 1314(a)(1)-(2), 1313;

Kentucky ex rel. Hancock v. Train, 9 Env't. Rep. Cas. (BNA) 1280 (E.D. Ky. 1976).

4. More limited efforts to prevent groundwater pollution have been made.
  - a. EPA can regulate plant site runoff, spills, leaks, and drainage of toxic pollutants associated with the operation of a point source discharging into surface water. 33 U.S.C. § 1314(e). Such regulation can protect groundwater quality.
  - b. The imminent hazard provision, authorizing EPA to prevent pollution sources from causing imminent and substantial endangerment to health or welfare, may be used to prevent groundwater pollution. 33 U.S.C. § 1364.
  - c. The dredge and fill permit program, 33 U.S.C. § 1344, protects wetlands, which include areas inundated by groundwater. See 33 C.F.R. § 323.2(c) (1987).
  - d. Federal grant money has been made available at times under §§ 205 and 208, 33 U.S.C. §§ 1285 and 1288, to assist state groundwater pollution prevention efforts. See EPA Strategy, at 24-25. Authorization for additional grants was provided in the 1987 amendments, Pub. L. No. 100-4, § 316(a) (to be codified at 33 U.S.C. § 1329(i)), but as of the beginning of fiscal year 1988 no money had been appropriated for this purpose.
  - e. Recent amendments requiring states to develop management programs for controlling nonpoint source

pollution should benefit groundwater quality. Pub. L. No. 100-4, § 316(a) (to be codified at 33 U.S.C. § 1329)).

5. The Clean Water Act, at least as applied thus far, is a surface water protection statute. It promises to continue to be of limited value as a groundwater protection mechanism in the future.

B. The Safe Drinking Water Act (42 U.S.C. §§ 300f to 300j-11).

1. Protection of Public Water Supply Systems

- a. The SDWA, as amended by Pub. L. No. 99-339 (1986), requires EPA to issue national primary drinking water regulations (NPDWRs) to protect against contaminants in drinking water which may cause adverse effects on the health of users of public water systems. 42 U.S.C. § 300g-1.
- b. EPA must first issue maximum contaminant level goals (MCLGs) for drinking water contaminants at the level at which no known or anticipated adverse effects on health will occur, allowing an adequate margin of safety. Id. § 300g-1(b)(4). The MCLGs, however, are nonenforceable.
- c. The binding component of the NPDWRs is the maximum contaminant level (MCL), which EPA must set as close to the MCLG for a particular contaminant as feasible (taking into account cost) with the use of the best available technology. Id. § 300g-1(b)(5).
- d. Public water supply systems (those with at least 15 service connections or with regular service to at least 25

persons) must furnish drinking water containing contaminants at or below the concentration levels set in the MCLs.

- e. For the first 12 years of the SDWA's existence, EPA issued NPDWRs for very few contaminants. Synthetic volatile organic chemicals were among the most important of the contaminants omitted from regulation. See H.R. REP. No. 1136, 98th Cong., 2d Sess. 5-6 (1984). Accordingly, Congress in 1986 issued deadlines for EPA to regulate a list of 83 contaminants, and required EPA to periodically list additional contaminants known or anticipated to occur in drinking water. EPA has issued its first "drinking water priority list" (DWPL) and has asserted that, once it issues NPDWRs for the congressional list of 83 and for DWPL contaminants, "many of the significant drinking water contaminants will have been regulated." 53 Fed. Reg. 1892, 1893 (Jan. 22, 1988). Disinfectant by-products and pesticides will be the remaining problem contaminants.
- f. The adequacy of the NPDWR system is questionable. First, it is not yet clear how closely EPA will adhere to the schedule for regulating drinking water contaminants. Second, the agency's ability to consider cost in setting MCLs may leave significant risks to public health unaddressed. Third, the NPDWR program applies only to public water systems; it provides no protection to the 25

million Americans (most in rural areas) who rely on private wells or small public systems. Fourth, the NPDWR regulation program applies at the tap, prohibiting the distribution of water with excessive contaminant levels; the program does nothing to prevent contamination of the supply sources themselves. "Standards are not preventive," Senator Durenberger recently remarked, and "standard setting has been a uniformly negative experience." Remarks by Sen. Durenberger in St. Paul, Minnesota (Feb. 15, 1988).

2. Underground Injection Control (UIC) Program

- a. The SDWA requires the states, under EPA guidance, to issue permits to prevent underground injection (the subsurface emplacement of fluids by well injection) that endangers drinking water sources. 42 U.S.C. § 300h. Siting, design, operation, and monitoring standards have been developed for 5 categories of wells, based on the nature of the material injected and the well's proximity to a drinking water source. See Dycus, supra, at 249-53; Glicksman & Coggins, supra, at 103-05.
- b. The UIC program has been criticized as inadequate. First, it applies only to the injection of fluids; direct placement of solid materials into an underground drinking water source apparently is not covered. Second, EPA's restrictive definition of a well excludes disposal into holes wider than they are deep. W. RODGERS, supra, at 117; Dycus,

supra, at 250. Third, the program is designed to protect underground sources of drinking water, but coverage is basically limited to the same public water systems covered by the NPDWRs. See 42 U.S.C. § 300h(d)(2); W. RODGERS, supra, at 118. Fourth, EPA has focused its efforts on preventing injections which cause pollutant concentrations in excess of the cost-based MCLs, see Dycus, supra, at 252, although the statute itself defines endangerment to include injection that "may otherwise adversely affect the health of persons." 42 U.S.C. § 300h(d)(2).

3. Sole Source Aquifers and Critical Aquifer Protection Areas

- a. The SDWA prohibits the federal government from providing financial assistance for any project which may contaminate an aquifer which is the sole or principal drinking water source for an area so as to create a significant hazard to the public health. Id. § 300h-3(e).
- b. EPA determines whether an aquifer qualifies for "sole source" status by inquiring (1) whether it supplies 50 percent or more of the total drinking water for that area; (2) whether the boundaries of the aquifer, its recharge area, and its streamflow source areas have been or are capable of being clearly delineated; and (3) whether the drinking water supplied by the aquifer can be replaced at reasonable cost. See 52 Fed. Reg. 23982, 23983 (June 26, 1987); 52 Fed. Reg. 6873 (Mar. 5, 1987).



- c. This program requires no preventive activity by anyone; it simply prohibits federal financial assistance to projects threatening the quality of groundwater in sole source aquifers.
  - d. In 1986, Congress authorized state and local governments to apply for federal grants to assist in the development of demonstration programs to protect critical aquifer protection areas (CAPAs) located within sole source aquifers. 42 U.S.C. § 300h-6.
  - e. EPA's test for CAPA eligibility requires proof that (1) the aquifer is particularly vulnerable to contamination due to the hydrogeologic characteristics of the unsaturated or saturated zone within the CAPA; (2) the aquifer is the source of drinking water for at least 75 percent of the persons in the aquifer service area; and (3) the cost of replacing the aquifer's water supply would exceed 0.7 percent of mean annual household income. 52 Fed. Reg. 23982 (June 21, 1987). Environmental groups have sued to invalidate EPA's use of this third factor.
  - f. The SDWA only authorizes \$4 million in grants for all CAPA projects, but as of the beginning of fiscal year 1988, Congress had not appropriated any money for this purpose.
4. The 1986 amendments to the SDWA also authorized federal grants to states developing wellhead protection areas ("the area surrounding a water well or wellfield, supplying a public water

system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield."). 42 U.S.C. § 300h-7. Although EPA has established eligibility criteria for these grants, see 52 Fed. Reg. 23494 (June 22, 1987), Congress has again not appropriated any money to implement the program. This program thus represents another example of the SDWA's failure thus far to live up to its potential as a mechanism for preventing groundwater pollution.

C. The Resource Conservation and Recovery Act (42 U.S.C. §§ 6901 to 6991i).

1. RCRA represents one of the most important and potentially effective statutory mechanisms for protecting and restoring groundwater quality threatened by solid and hazardous waste.
2. Federal regulation of nonhazardous, solid waste is minimal. RCRA requires EPA to develop waste management guidelines describing performance levels attainable by solid waste management practices. These guidelines must provide for protection of groundwater quality from leachates. 42 U.S.C. § 6907(a)(2). But EPA does not directly regulate treatment, storage, or disposal of nonhazardous waste. States seeking federal financial assistance in managing such waste must submit a management plan for EPA approval. Id. § 6947(b)(1). Despite some initial confusion on the issue, it now appears that all states must provide for the closing or upgrading of open dumps. See id. §§ 6943(a)(3), 6947(a)(1), 6945(a); H.R. REP. NO. 198, 98th Cong., 1st Sess., pt. 1, at 53-54 (1984).

3. Federal regulation of hazardous waste management activities is far more comprehensive. RCRA regulates all phases of the hazardous waste management process, from generation to disposal. See generally Glicksman & Coggins, supra, at 110-18.
- a. The RCRA regulatory scheme applies to wastes that are either listed by EPA as hazardous or that display the characteristics of hazardous wastes identified by EPA. 42 U.S.C. § 6921; 40 C.F.R. part 261.
  - b. Generators and transporters of listed or identified hazardous wastes must comply with recordkeeping, labeling, and other requirements and must help EPA track the movement of hazardous waste through a manifest system. 42 U.S.C. §§ 6922-23.
  - c. Facilities engaged in the treatment, storage, or disposal of hazardous waste (TSD facilities) must comply with EPA location, design, construction, and operation standards, which are applied to individual facilities through a permit program run by EPA or authorized states. Id. §§ 6924-25.
  - d. The TSD facility regulations are designed in significant part to prevent contamination of groundwater by hazardous wastes, particularly from spills or leaks. The regulations aim primarily at protecting human health.
  - e. TSD facilities must monitor the uppermost underlying aquifer. If certain hazardous constituents (those for which it is feasible to analyze in groundwater samples plus chemicals routinely monitored in the Superfund

program, see 52 Fed. Reg. 25942 (July 9, 1987)) are detected, more extensive monitoring is required to ensure that hazardous constituents entering groundwater do not exceed concentration limits set by EPA. See 40 C.F.R. §§ 264.91(a) (1), 264.95(a), 264.99(a).

- f. These concentration limits are set at the level of the NPDWRs for certain substances regulated under the SDWA, see id. § 264.94, and at background levels for most other substances. Id. § 264.94(a)(1). EPA may set alternate concentration limits (ACLs) sufficient to protect human health and the environment on a case-by-case basis. If applicable concentration levels are exceeded, the TSD facility must take appropriate corrective action. Id. §§ 264.94(a)(2), 264.100(b), (c).
- g. In the 1984 amendments to RCRA, Congress sought to further minimize threats to groundwater quality by phasing in a series of conditional prohibitions on land disposal of certain hazardous substances. These bans go into effect unless EPA (1) determines that a prohibition on land disposal is not necessary to protect health and the environment for as long as the waste remains hazardous, 42 U.S.C. § 6924(d)-(e), (g); (2) exercises its limited authority to grant an individual exception to the prohibition, id. § 6924(h); or (3) finds that treatment of the waste will substantially reduce its toxicity or substantially diminish the likelihood of migration of

hazardous constituents from the waste, id. § 6924(m); 40 C.F.R. part 268. See generally 53 Fed. Reg. 11742, 11743-47 (Apr. 8, 1988).

- h. The 1984 amendments also (1) imposed more stringent operating requirements on TSD facilities such as new or expanded landfills and surface impoundments (which must install liners and leachate collection systems and engage in more extensive groundwater monitoring, see 42 U.S.C. § 6924(o)(1); (2) required EPA to issue criteria for locating new TSD facilities and for identifying areas of vulnerable hydrogeology, id. § 6924(o)(7); (3) enhanced EPA's authority to require corrective action by TSD facility permit applicants, see id. § 6924(u); 52 Fed. Reg. 45788 (Dec. 1, 1987); and (4) established a new program to prevent groundwater contamination from leaking underground storage tanks, see 42 U.S.C. §§ 6991 to 6991i.
3. RCRA provides EPA with a broad range of enforcement options, including the power to seek civil or administrative abatement of hazardous waste management activities that may present an imminent and substantial endangerment to health or the environment. Id. § 6973.
4. The 1984 RCRA amendments addressed some of the statute's previous deficiencies in preventing groundwater contamination by hazardous wastes. It remains to be seen, however, how quickly and effectively EPA will implement the more rigorous statutory provisions. The agency has already missed some

statutory deadlines, and there is some question whether its use of MCLs and ACLs as the goals of corrective action is sufficiently protective of groundwater quality. According to a recent GAO report, EPA's failure to develop guidelines has prevented the collection of accurate groundwater monitoring data, which in turn has slowed the pace of issuing final permits for TSD facilities and of requiring corrective action at problem facilities.

D. The Comprehensive Environmental Response, Compensation, and Liability Act (or Superfund) (42 U.S.C. §§ 9601 to 9675, as amended by Pub. L. No. 99-499 (1986)).

1. RCRA deals primarily with ongoing hazardous waste management activities. CERCLA is meant to address current threats to the environment posed by hazardous substances located at inactive or abandoned disposal sites. See generally Glicksman & Coggins, supra, at 118-25.
2. The statute, enacted in 1980, set up a special trust fund in the U.S. Treasury to assist in financing the cleanup of these problem sites. Initially authorized at a level of \$1.6 billion, the fund was enlarged to \$8.5 billion in 1986 (with an additional \$.5 billion for abandoned leaking underground storage tanks).
3. The Superfund can be used to finance government and private responses to releases or threatened releases from hazardous waste facilities and to restore or replace injured or destroyed government-managed natural resources. 42 U.S.C. § 9611.

4. When EPA determines that there is a release or threatened release of a hazardous substance into the environment, it may use Superfund money to finance a response. Id. § 9604.
  - a. Responses, which take the form of either short-term removal or long-term remedial actions, must be undertaken in accordance with the National Contingency Plan (NCP), 40 C.F.R. part 300. This is EPA's detailed blueprint for implementing CERCLA.
  - b. Remedial actions are appropriate only at sites listed on the National Priorities List (NPL). Id. § 300.68(a)(1). Of the first 539 sites placed on the NPL, 410 were selected in part because of groundwater contamination problems.
5. If EPA uses the Superfund to finance a response action, it may seek reimbursement from four categories of potentially responsible parties (PRPs): (1) present owners or operators of the problem site; (2) owners or operators at the time hazardous substances were disposed there; (3) persons (including waste generators) who arranged for disposal or treatment at the problem site; and (4) transporters who selected the site. 42 U.S.C. § 9607(a). Liability is strict (with four limited exceptions specified in id. § 9607(b)), and may be joint and several. It is also retroactive, extending to releases or threatened releases caused by activities that occurred before CERCLA's enactment.
6. In lieu of financing a government-arranged cleanup from the Superfund, EPA may ask the Justice Department to bring a civil

suit to force PRPs to conduct necessary cleanup operations, id. § 9606(a), or issue administrative orders requiring PRPs to abate dangers to public health or welfare.

7. The presence of or potential for groundwater contamination is important to CERCLA's implementation in several respects. First, groundwater pollution increases the chance that a site will be placed on the NPL. Second, groundwater pollution suggests the need for rapid remedial action. See, e.g., 40 C.F.R. § 300.68(e)(1)(iii). Third, the presence of groundwater pollution is a crucial factor in determining the nature of the remedial action chosen.
8. As originally enacted, CERCLA provided little guidance on the appropriate extent of cleanup.
  - a. Since 1986, the statute has required that, "to the extent practicable," remedial actions be cost-effective. 42 U.S.C. § 9621(a).
  - b. But remedial actions must also be "protective of human health and the environment," and there is a clear preference for remedial actions in which treatment permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes. Id. § 9621(b).
  - c. EPA's Office of Solid Waste and Emergency Response has asserted that it is appropriate to give equal weight to cost effectiveness and the permanence of the remedy selected, while environmentalists and some legislators



interpret the statute to require subordination of cost considerations to permanence.

- d. CERCLA also requires that, if hazardous substances will remain onsite, remedial actions apply any environmental standards which are "legally applicable" to the waste concerned or "relevant and appropriate under the circumstances of the release or threatened release." Id. § 9621(d)(2). EPA's position has been that it is appropriate to use the SDWA's cost-based MCLs in setting these "ARAR" standards, while environmentalists contend that CERCLA and a recent decision interpreting the Clean Air Act's hazardous air pollutant provisions (NRDC v. EPA, 824 F.2d 1146 (D.C. Cir. 1987)) require use of the more stringent, health-based MCLGs.
- e. Resolution of disputes such as these may play a large part in determining how effectively response actions under CERCLA prevent the spread of groundwater contamination from inactive hazardous waste disposal sites.

E. The Toxic Substances Control Act (15 U.S.C. §§ 2601 to 2629)

- 1. Perhaps the most underutilized of the federal laws concerning toxic or hazardous substances is TSCA.
- 2. The Act authorizes EPA to require manufacturers of potentially harmful chemicals to test them for their health and environmental effects and to submit test data for EPA's assessment. 15 U.S.C. § 2603.

3. EPA may prohibit or limit the manufacturing, processing, or distribution of any chemical substance which EPA finds may present an unreasonable risk of injury to health or the environment. Id. § 2605(a).
4. TSCA also authorizes EPA to regulate PCBs. Id. § 2605(e). EPA has exercised this authority to try to prevent groundwater contamination, for example, by specifying location and operating requirements for landfills receiving PCBs. See 40 C.F.R. part 761, subpart D.
5. Aside from its regulation of PCBs, EPA has not used TSCA extensively to prevent groundwater pollution. Very few substances have been regulated, perhaps because of the agency's failure to take advantage of the statute's testing and premanufacture notification provisions. See Glicksman & Coggins, supra, at 128. It may also be attributable to statutory limitations such as the difficulty of demonstrating that a substance presents an "unreasonable risk" to health or the environment, and the requirement that EPA employ the "least burdensome" regulatory requirements. 15 U.S.C. § 2605(a).
6. Nevertheless, the agency has indicated that it may seek to enhance TSCA's potential as a weapon in the fight against groundwater pollution by formulating a groundwater protection strategy. In draft form, the strategy's goals included:
  - a. identification of priority geographic areas for studying potential groundwater contamination;
  - b. identification of contamination sources;

- c. information-gathering on groundwater pollutants such as VOCs and fertilizer constituents; and
  - d. analysis of groundwater samples.
- 7. EPA proposed to use TSCA's testing provisions (15 U.S.C. § 2603) to determine the health effects of exposure to certain groundwater contaminants; its reporting provisions (id. § 2607) to identify groundwater contamination problems; and its regulatory provisions (id. § 2605) to adopt appropriate controls, such as labeling of fertilizers, geographic restrictions on fertilizer applications, and siting and operating requirements for septic tanks. See Env't. Rep. (BNA) - Cur. Devs. 1794-95 (Jan. 24, 1986).
- 8. EPA has taken steps to use TSCA's testing provisions to assist in preventing groundwater pollution from RCRA-regulated TSD facilities. See 52 Fed. Reg. 20336 (May 29, 1987) (proposed rule).
- F. The Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. §§ 136 to 136y).
  - 1. Pesticides are a significant potential source of groundwater pollution.
  - 2. FIFRA generally prohibits the distribution, sale, shipment, or receipt of unregistered, adulterated, or misbranded pesticides. 7 U.S.C. §§ 136(a), 136(j).
  - 3. Registration with EPA requires proof that the pesticide's composition warrants the manufacturer's claims as to its usefulness; that it is properly labelled; that it will perform its

intended function without unreasonable adverse effects on the environment; and that, when used in accordance with widespread and commonly recognized practices, it will not generally cause such adverse effects. Id. § 136a(c)(5).

4. Although FIFRA aims at avoiding the distribution of environmentally disruptive pesticides, most pesticides in use have not been comprehensively tested and reviewed by EPA. This lack of information has prevented EPA from taking adequate steps to limit pesticide pollution. See Glicksman & Coggins, supra, at 130-31.
5. The statute's burdensome procedures for controlling pesticide registrations have added to these obstacles. The result has been EPA's detection of pesticides in groundwater in at least 22 states.
6. There are recent signs that EPA may be stepping up its efforts to prevent pollution of groundwater by pesticides. The agency recently announced a proposed strategy for preventing unacceptable contamination of current and potential drinking water supplies. See 53 Fed. Reg. 5830 (Feb. 26, 1988).
  - a. The presence of contamination in excess of SDWA MCLs would create a rebuttable presumption that the risks posed by pesticide contamination of an underground source of drinking water will exceed the local benefits derived from the pesticide. The contamination would therefore present an unreasonable risk to health and the environment.

- b. The proposed strategy raises the possibility of EPA-directed, nationally applicable groundwater protection measures, such as use restrictions, to address these risks, but expresses a preference for state-directed management plans. It is unclear whether states with significant agricultural activity have sufficient incentive or the political capability to apply meaningful restrictions on pesticide applications.

#### G. Other Federal Laws

1. A variety of other federal laws have at least tangential application to activities with the potential to cause groundwater pollution.
2. These laws include the Surface Mining Control and Reclamation Act, 30 U.S.C. §§ 1201 to 1328; the National Environmental Policy Act, 42 U.S.C. §§ 4321 to 4370; a series of statutes regulating the transportation of hazardous substances; laws regulating the disposal of nuclear waste; the Clean Air Act, 42 U.S.C. §§ 7401 to 7642; and the Endangered Species Act, 16 U.S.C. §§ 1531 to 1543.
3. See generally Glicksman & Coggins, supra, at 131-37.

#### H. Assessment of Current Federal Law

1. Each of the laws addressed above is contributing to the federal government's attempt to redress existing groundwater contamination problems and prevent the development of future ones.

2. The effectiveness of these laws, however, has been hampered by deficiencies in scope and insufficiently vigorous implementation by EPA and the states.
3. Some of these problems may be eliminated without additional legislation. But even if EPA and state regulators take full advantage of the authority available to them under current federal law, the result is likely to fall short of an adequate program for addressing groundwater contamination problems.
4. According to the Office of Technology Assessment, current efforts to deal with groundwater pollution are hampered by the absence of an "explicit, comprehensive national legislative mandate to protect groundwater from contamination." Office of Technology Assessment, Protecting the Nation's Groundwater From Contamination 63 (1984) [OTA REPORT]. Many legislators agree. See, e.g., H.R. REP. NO. 1136, 98th Cong., 2d Sess. 5 (1984).
5. Although many federal laws "deal in part with groundwater matters, ... none [is] devoted exclusively to this purpose." Id. Instead, "portions of the groundwater problem have been addressed at various times by a patchwork of laws designed to protect other environmental resources." Id. at 5. The result is "that there has been no comprehensive, unified national groundwater protection strategy for the United States." Id.
6. The adverse implications of the absence of such a strategy have been numerous. Because of the plethora of federal laws with some bearing on potential groundwater-polluting activities,

the authority to resolve the problems created by these activities is fragmented. This fragmentation occurs at several levels.

a. There are, for example, at least 13 committees in the House with jurisdictional interest in groundwater quality issues. See CONG. REC. H 10809 (daily ed. Dec. 2, 1987) (remarks of Rep. Brown).

b. At least seven federal agencies play some regulatory or research role on groundwater quality issues: EPA, the Departments of Agriculture, Interior, and Transportation, NRC, the U.S. Geological Survey, and the Army Corps of Engineers.

c. Even within EPA, which is the federal agency primarily responsible for protecting groundwater quality, four offices within EPA's national headquarters have at times shared the responsibility to deal with groundwater pollution, and a similar splintering of authority has occurred in the regional offices. See EPA Strategy, supra, at 30. The situation within the Agriculture Department is even worse: 18 sub-agencies have partial jurisdiction over groundwater matters. CONG. REC. H 10810 (Dec. 2, 1987).

7. Fragmentation of responsibility has led to an inability to prioritize problems or coordinate efforts to address those problems. As one commentator has noted, "[s]ensible priorities are essential. In their absence, everything is regulated, nothing is

regulated, or rules are haphazard." Gilbert, supra, at 2-25 to 2-26.

- a. Under the current system of divided responsibility, "each Federal agency with ground water ... responsibilities has its own mission and priorities...." H.R. REP. NO. 155, 100th Cong. 1st Sess., pt. 4, at 22 (1987). Each agency looks at groundwater protection problems "from its own narrow perspective. ..." CONG. REC. H 10825 (daily ed. Dec. 2, 1987) (remarks of Rep. Roe).
  - b. Similarly, EPA's agenda largely has been shaped by the demands of the separate regulatory offices, whose interests are too often limited to supporting their own regulatory programs. See H.R. REP. No. 155, 100th Cong., 1st Sess., pt. 4, at 19 (1987).
  - c. There is sometimes communication, but very rarely coordination of effort, either among or within agencies. See, e.g., id. at 21; id., pt. 2, at 10.
8. Lack of priorities and uncoordinated regulatory efforts result in inefficient, inconsistent, and inadequate protection of groundwater quality.
- a. Inefficiency results from duplication of effort. EPA's Science Advisory Board has expressed concern, for example, that EPA, USGS, and USDA all support research, development, and validation activities concerning groundwater modeling; and both EPA and USGS conduct groundwater contamination assessments. Id., pt. 4, at 21.



- b. Inconsistency among regulatory programs has surfaced in (1) the definition of the resource to be protected; (2) the degree of protection to be afforded the resource; (3) the type and duration of controls applicable to contamination sources; (4) the relevance of cost and feasibility in prescribing preventive or remedial requirements; (5) the availability of variances; (6) the extent of and approach to monitoring; and (7) the extent of remedial activity required. See EPA Strategy, supra, at 27, 29, 33. For example, RCRA regulations did not require corrective action for groundwater contamination beyond the boundaries of a facility, while CERCLA did. Conversely, levels of contamination triggering cleanup requirements were sometimes lower under CERCLA than RCRA. H.R. REP. NO. 1136, 98th Cong., 2d Sess. 6 (1984).
- c. Inadequate protection results from gaps in regulatory coverage. Because each agency or office is inclined to view the pollution problem from its own narrow perspective, "too many problems have fallen through the cracks." H.R. REP. NO. 155, 100th Cong., 1st Sess., pt. 4, at 20 (1987) (quoting a witness from the Conservation Foundation). Significant gaps in research have occurred. See id. at 22-23. Significant resources (such as private water wells) are exempted from some or all regulatory programs. See H.R. REP. NO. 1136, 98th Cong., 2d Sess. 6 (1984). Certain present or potential contaminants remain

unregulated. See Glicksman & Coggins, supra, at 138-39; CONG. REC. H 10818 (daily ed. Dec. 2, 1987) (remarks of Rep. Nowak). Potential contamination sources (such as abandoned aboveground storage tanks, fertilizers, pipelines, and non-point sources) are regulated inadequately or not at all. See H.R. REP. NO. 155, 100th Cong., 1st Sess., pt. 4, at 19-20; OTA REPORT, supra, at 77.

9. A final factor weakening the ability of current federal laws to protect groundwater quality is the lack of sufficient funding.
  - a. For years, the Superfund program provided the most obvious example of a regulatory regime crippled by inadequate resources.
  - b. Other examples are not hard to find. In its 1984 amendments to RCRA, Congress authorized the establishment of a National Groundwater Commission to identify gaps in our knowledge concerning groundwater contamination and to make recommendations to fill them. But the Administration never included any funding for the Commission in its budget proposals so the Commission never became operative. See CONG. REC. H 10808 (daily ed. Dec. 2, 1987). See also H.R. REP. NO. 1136, 98th Cong., 2d Sess. 12 (1984) (describing recent reduced federal funding for groundwater research and training of groundwater specialists).
  - c. The SDWA's new critical aquifer protection area and

wellhead protection area grant programs have not been funded.

- d. Federal financial assistance to the states under the CWA's § 208 areawide waste management program and the RCRA program for nonhazardous solid waste management were totally eliminated at various times between 1981 and 1985. See Glicksman & Coggins, supra, at 140.
- e. Funding reductions and omissions such as these have inevitably weakened the ability of existing federal law to fulfill its promise as an effective mechanism for preventing groundwater pollution.

#### IV. EPA's Groundwater Protection Policy

##### A. Background

- 1. A series of oversight hearings in 1980 revealed to legislators the somewhat chaotic nature of the federal effort to protect groundwater quality. The House Committee on Government Operations called upon EPA to "enunciate as swiftly as possible a definitive national groundwater policy." H.R. REP. NO. 1440, 96th Cong., 2d Sess. 11 (1980).
- 2. Two abortive attempts to respond to this charge preceded issuance of EPA's final Ground-Water Protection Strategy in August, 1984.
  - a. The first attempt died when new EPA Administrator Anne

Gorsuch decided not to implement the strategy devised by officials of the Carter Administration.

- b. The second attempt was killed by Interior Secretary Watt, then head of the President's Cabinet Council on Natural Resources and the Environment, as an improper infringement on states' rights. See H.R. REP. NO. 1136, 98th Cong., 2d Sess. 8-9 (1984).

B. Nature and Purpose

1. The August 1984 Strategy rested on the premise that existing federal, state, and local groundwater quality protection efforts "suffer from a lack of coordination among responsible agencies, limited information about the health affects of exposure to some contaminants, and a limited scientific foundation on which to base policy decisions." EPA Strategy, supra, at 1. In particular, EPA recognized that inconsistency among EPA regulations formulated under different statutes had "hinder[ed] a cohesive approach to ground-water protection." Id. at 3.
2. The Strategy had four goals:
  - a. to strengthen EPA's internal organization for dealing with groundwater quality issues;
  - b. to foster stronger state government programs for groundwater protection;
  - c. to cope with inadequately addressed problems of groundwater contamination; and
  - d. to establish a framework for decisionmaking in a variety of EPA programs. Id. at 34, 51-52.

3. The first goal would be promoted by establishing an EPA Office of Ground-Water Protection to identify and resolve inconsistencies among EPA programs and to oversee implementation of the Strategy. Id. at 8. That Office, which was established in April, 1984, would coordinate the efforts of EPA national and regional offices, serve as EPA spokesperson in dealing with other federal agencies and legislators on matters affecting groundwater, identify research needs, and develop guidance for issuing grants to support state programs.
4. The second goal reflected EPA's view that state and local governments should assume primary responsibility for implementing programs to protect groundwater quality "because they are best placed to address specific problems as they arise on a day-to-day basis." Id. at 20. According to EPA, "the most effective and broadly acceptable way to increase national institutional capability to protect ground water is to strengthen state programs." Id. at 35. EPA's role would be to "provide national environmental leadership, establish standards required by Federal legislation, conduct research and national information collection, provide technical support to States, and provide assistance to States in strengthening their programs." Id. at 20. EPA would encourage states to make use of existing grant programs and assist states both in solving specific problems and designing broad state protection programs.
5. To achieve the Strategy's third goal, dealing with inadequately addressed contamination problems, EPA would conduct

groundwater research, survey inadequately addressed threats to groundwater (such as leaking underground storage tanks, land disposal facilities, and pesticide and fertilizer applications), and prepare a program involving a combination of ambient, source, and point-of-use monitoring. See id. at 35-41.

C. EPA's Groundwater Classification Scheme

1. The principal component of EPA's efforts to establish a substantive framework for making decisions under various statutes addressing groundwater pollution, the fourth goal of the Strategy, was a three-tiered groundwater classification scheme. The agency adopted the policy that "ground-water protection should consider the highest beneficial use to which ground water having significant water resources value can presently or potentially be put." Id. at 5. "While an unspoiled environment is an attractive goal, the potential cost of protecting, monitoring, and restoring a resource so vast as ground water is enormous." Id. at 33.
2. EPA would therefore seek to provide different levels of protection to groundwater resources based on their value and vulnerability to contamination. Id. at 43. Site-specific determinations would be made under EPA-administered programs on whether a particular groundwater source met the criteria for Class I, II, or III groundwater. Id. at 48.
  - a. Class I includes "Special Ground Waters." These are resources that (1) are highly vulnerable to contamination because of the hydrological characteristics of the areas

under which they occur, and (2) are either (a) irreplaceable, in that no reasonable alternative source of drinking water is available to substantial populations; or (b) ecologically vital, in that the aquifer provides the base flow for a particularly sensitive ecological system that, if polluted, would destroy a unique habitat. *Id.* at 5-6.

- b. Class II groundwater is composed of all other groundwater that is currently used or is potentially available for drinking water or other beneficial use. *Id.* at 6.
- c. Class III groundwaters are those not considered to be potential sources of drinking water and of limited beneficial use. These would include resources that are heavily saline, with total dissolved solids above 10,000 mg/d, or are otherwise contaminated beyond levels that allow cleanup using methods reasonably employed in public water system treatment.

- 3. This three-tiered classification scheme would be used to help make regulatory decisions under the various statutes designed to protect groundwater quality. The Strategy "lays out a blueprint for changes in regulations. The regulations will change to conform to the strategy." *Env't. Rep. (BNA) - Cur. Devs.* 715 (Sept. 7, 1984). For example:

- a. Under RCRA, EPA would prohibit the siting of new hazardous waste land disposal facilities over Class I or II but not Class III groundwater aquifers. Corrective action requirements for leaking TSD facilities would differ

according to the classification of the aquifer; Class I aquifers would have to be restored to background levels, while ACLs might be available for the other two classes. See EPA Strategy, supra, at 44-47.

- b. Under CERCLA, sites polluting Class I resources would be the most likely to be placed on the NPL. Sites polluting Class II resources would be more likely to appear on the NPL if the groundwater is a current drinking water source than an unused potential source. The extent of remedial action required would also differ depending on the classification of the contaminated or threatened resource.
- c. Under the SDWA, special permit conditions (such as cement casing requirements) might be applied to UIC wells near Class I aquifers. Id. at 44-45.
- d. Under TSCA, EPA would consider applying special restrictions on the use, disposal, or storage of potentially threatening chemicals over Class I groundwater. EPA would also use its information-gathering authority to learn more about chemical management in Class I areas. Id. at 44.
- e. Under FIFRA, EPA might apply restrictions on pesticide applications in areas overlying Class I groundwater that would not apply to other resources. See 53 Fed. Reg. 5131 (Feb. 26, 1988).



#### D. Criticisms

1. A late draft of EPA's Strategy was attacked by the Interior Department as excessively stringent. Interior was concerned that the Strategy would:
  - a. erode state primacy concerning groundwater regulation;
  - b. regulate quantity as well as quality;
  - c. lead to a serious bias toward excessive regulation;
  - d. hinder or curtail mining, agriculture, and other industrial activities; and
  - e. lead to continuous controversy and litigation. See H.R. REP. NO. 1136, 98th Cong., 2d Sess. 13 (1984).
2. Most of the criticism, however, has come from the other direction.
  - a. Critics have worried that the new Office of Groundwater Protection lacks sufficient authority to effectively coordinate EPA's groundwater protection efforts because it cannot resolve disputes between EPA program offices. See id. at 12-13, 18.
  - b. A congressional oversight report concluded that EPA needed to assure more adequate funding for its own research efforts and for its attempts to assist state regulatory programs. See id. at 17.
  - c. State pollution agencies feared that the Strategy would place additional regulatory burdens on them without providing sufficient technical or financial assistance to deal with those burdens. Id. at 128-29.

- d. More fundamentally, public interest groups alleged that the Strategy "does not require the States or the Federal government to do anything to protect groundwater, because the strategy [is] merely guidance." Id.
- e. Finally, the central substantive component of the Strategy, the classification scheme, was attacked as an ill-advised attempt to invite further degradation of aquifers and to "write off" certain groundwater resources entirely, "even though future technological developments might make the use of some of these aquifers economically feasible, even for drinking water purposes." Id. at 12. Recently, Senator Durenberger stated his view that "the federal government [should not] be in the business of deciding what aquifers should be used as dumps for this nation's hazardous substances." Remarks on Feb. 15, 1988, supra.

## V. The Future of Federal Groundwater Quality Law

### A. Current Congressional Opinion

- 1. There appears to be broad agreement among interested legislators on several points concerning efforts to prevent groundwater pollution:
  - a. Significant gaps remain in our understanding of the extent, sources, spread, and prevention of groundwater contamination.

- b. These gaps are hindering the ability of regulators to develop effective policies and programs to protect groundwater quality, including the establishment of priorities.
- c. Under existing law, state and local governments "have the primary responsibility for protecting and managing groundwater resources," H.R. REP. NO. 155, 100th Cong., 1st Sess., pt. 4, at 22 (1987), and some have already developed more comprehensive and creative programs than the federal government has. Due to the site-specific nature of groundwater pollution problems, state and local governments should continue to play a significant role in protecting this resource.
- d. State and local governments lack the resources to support comprehensive groundwater research programs necessary to develop optimal control strategies. Moreover, it would be a waste of resources for each state to be engaging in technical research on topics of universal applicability. The federal government therefore should engage in research, disseminate information to the states, and provide financial assistance to support state groundwater pollution control programs. See, e.g., id., pt. 2, at 13; id., pt. 4, at 22.
- e. Despite the formulation of EPA's groundwater protection strategy, federal groundwater research programs remain

uncoordinated and inadequate. Federal regulatory programs are also insufficiently coordinated.

2. The legislative consensus probably ends here. The main issue in dispute is whether federal regulatory authority should be increased, and, if so, how. The lack of consensus on this issue has produced three kinds of legislative proposals:

- a. proposals for increased federal research and financial assistance to state and local regulators;
- b. proposals that also would create new but limited federal regulatory authority; and
- c. proposals for comprehensive federal regulation similar to that currently in place for surface water pollution.

B. Federal Research Legislation

- 1. On December 2, 1987, the House, by a vote of 399-15, passed H.R. 791, CONG. REC. H 10831 - H 10841 (daily ed. Dec. 2, 1987). Similar legislation is before the Senate Committee on Environment and Public Works. See S. 1105, 100th Cong., 1st Sess. (1987).
- 2. H.R. 791 seeks to expand federal research efforts, increase technical assistance to states and localities, and coordinate federal research programs.
- 3. Expanded federal research:
  - a. H.R. 791 establishes a National Ground Water Assessment Program within USGS. This Program responds to criticism that the water resources activities of USGS have never been formalized by legislation; instead, its authority in

this area has been provided piecemeal in annual appropriation acts. See H.R. REP. No. 155, 100th Cong., 1st Sess., pt. 1, at 7 (1987).

- b. The bill seeks to strengthen EPA's research programs, directing the agency to conduct health risk assessments for all significant groundwater contaminants. EPA must also initiate a program to develop and demonstrate technologies to prevent, detect, and remedy pollution. EPA would solicit proposals for demonstration projects annually and finance up to 50 percent of their cost.
  - c. The bill directs the Department of Agriculture to study the effects of farming methods on groundwater quality and quantity and to set up an Agricultural Nitrogen Best Management Practices Task Force to encourage farmers to use nitrogen fertilizers in a manner which minimizes groundwater contamination. The "BMPs" formulated by the Task Force would not be binding on anyone.
4. Increased technical assistance:
- a. The bill authorizes and expands ongoing USGS and EPA programs to provide technical assistance to states and localities experiencing groundwater pollution.
  - b. USGS would help in mapping, surveying, and similar activities. EPA would assist in carrying out state and local responsibilities under SDWA, RCRA, CERCLA, and FIFRA.

- c. The bill also directs the Secretary of the Interior to establish a National Groundwater Information Clearinghouse to serve as a central reference center for all groundwater information and to increase the accessibility of that information to those who need it.

5. Coordination:

- a. The bill directs the President to coordinate the activities of federal agencies with groundwater-related responsibilities by creating an Interagency Committee on Ground Water Research. Co-chaired by USGS and EPA, the Committee would identify data needs and scientific uncertainties, recommend priorities and a coordinated research plan, consult with state and local governments, and report to the President.
- b. The bill also requires EPA to create a media-specific research committee for groundwater resources, and directs the Science Advisory Board to review EPA groundwater research programs and report to Congress.

6. The bill authorizes \$81 million in new spending over the next three fiscal years to support all of these activities.

C. Limited Federal Regulatory Intervention

1. S. 20, introduced by Senator Moynihan and others on the first day of the 100th Congress, is illustrative of this approach. (See also H.R. 963, 100th Cong., 1st Sess. (1987).)
2. S. 20 directs EPA to establish groundwater quality criteria reflecting the latest scientific knowledge on the physical

properties of groundwater contaminants and their association with various sources. The criteria must include an analysis of the risk posed by each contaminant to health and the environment at various concentrations in connection with various uses. Id. § 4.

3. Based on the criteria issued by EPA, states would be required to issue numerical, ambient groundwater protection standards. These standards would have to be at least as stringent as NPDWRs issued under the SDWA.
  - a. To a limited extent, standards could vary according to the use of particular groundwater resources.
  - b. States would submit their standards for EPA approval, although EPA would not have the power (as it does under § 303 of the Clean Water Act) to issue standards for a state which fails to submit acceptable standards.
  - c. State standards would apply as the standard of cleanup or control under federal programs (such as RCRA and CERCLA) relating to groundwater protection.
4. S. 20 would also require states to conduct an assessment of their groundwater resources, id. § 6, to establish monitoring programs, id. § 8, and develop groundwater management strategies and programs for protecting groundwater quality. Id. §§ 7, 9.
  - a. The purpose of the protection program would be to assure compliance with the state groundwater standards.

- b. EPA would provide guidance concerning the design and structure of state programs and could assess state programs which appeared not to comply with the statute. It could also make grants to states to assist in groundwater assessments, planning, and program management.
- c. But, like the new § 319 of the Clean Water Act concerning non-point sources of surface water pollution, S. 20 would not give EPA any authority to develop or implement a strategy for a state that failed to meet its statutory obligations. It would thus provide the federal government with significantly less leverage than it has over states failing to develop acceptable implementation plans under the Clean Air Act.

D. Comprehensive Federal Regulation

- 1. The most far-reaching of the pending bills directed at protecting groundwater quality is Senator Durenberger's massive S. 2091, introduced on behalf of Senators Baucus, Stafford, and Chafee in February, 1988.
- 2. Like H.R. 791, the bill would significantly expand statutory authority and financial resources for federal research and technical assistance to the states. See id. §§ 201 to 212, 601 to 606, and 701 to 702.
- 3. But S. 2091 is far more than a research and assistance bill. Its primary purpose is to ensure that groundwater resources "are not degraded in any way." Id. § 102(a). According to Senator



Durenberger, S. 2091 would overrule EPA's groundwater classification system, which authorizes degradation of certain aquifers.

4. S. 2091's starting point is patterned after § 301(a) of the Clean Water Act: except as in compliance with specified provisions of the bill, "the discharge of any contaminant into the ground waters of the United States shall be unlawful" as of July 1, 1992. As under the Clean Water Act, the key terms are broadly defined. A "discharge," for example, includes not only a release but also a threat of a release, intentional or unintentional. Id. § 105(16).
5. EPA or a state with an EPA-approved program may issue a discharge permit. Id. § 306(b). Because of the number of sources involved, states would be able to issue general permits covering classes of sources, much like under the dredge and fill permit program under § 404 of the Clean Water Act.
6. Permits would require new sources to meet performance standards (including siting, design, construction, operation, monitoring, correction, closure, and financial responsibility requirements) issued by EPA based on the best practicable technology or management practices. Id. §§ 306(c)(5), 302(a)(1). These new source standards would require whatever discharge controls are necessary to prevent exceedance of primary, health-based and secondary, welfare-based groundwater protection standards issued by EPA for various contaminants. Id. § 302(a)(1).

7. Discharge permits for sources or potential sources in "wellhead protection areas" (WPAs) or "primary aquifer protection areas" (PAPAs) would have to require EPA-defined best available control technologies or management practices. Id. § 305(c)(6).
  - a. A WPA is the surface and subsurface area above the zone of influence surrounding a public drinking water source through which contaminants may reach that source. Id. § 304(a). Certain categories of new sources (such as RCRA TSD facilities for hazardous waste and certain UIC wells under the SDWA) could not be located in a WPA, and existing sources of the same kind would have to be phased out. Id. § 304(i). Other kinds of existing sources would have to be upgraded or closed.
  - b. PAPAs would be highly valuable or vulnerable aquifers, a broader category of resources than those covered under the sole source aquifer provisions of the SDWA. New source siting prohibitions and closure and upgrading requirements similar to those applicable to WPAs would apply to PAPAs designated by the states in accordance with EPA criteria. Id. § 305.
8. Permits for existing sources would have to prevent contamination in excess of EPA's groundwater protection standards. They would also require soil and groundwater assessments to identify existing contamination and appropriate corrective action. Id. §§ 306(c)(8), 403(c)(3).

9. Corrective action would be designed to protect health, welfare, or the environment, id. § 403(g), and, whenever possible, assure compliance with primary groundwater protection standards. Id. § 403(g)(2).
- a. Whenever a contaminant exceeds 50 percent of a primary standard, all contributing sources would have to implement plans to prevent violations of the standard. Id. § 403(c)(5).
- b. Whenever a contaminant reaches or exceeds a primary standard, responsible parties would have to stop operating or discharging and take whatever other actions were necessary to prevent the spread of contamination. Id. § 403(c)(6). Contamination sources could also be required to provide alternative water supplies and relocate residents or businesses. Id. § 403(c) (7).
- c. Whenever a contaminant substantially exceeds correction standards issued by EPA, responsible parties would have to engage in activities similar to CERCLA remedial actions. See. id. § 403(c)(8) - (10). Correction standards would reflect the concentration or percentage reduction achievable through application of best available treatment methods. Id. § 401(b)(3)(B).
10. Permits would also impose monitoring, recordkeeping, reporting, and financial responsibility requirements on sources, id. § 305(c)(9)-(13), and could require development of contingency

plans to deal with accidents and post-closure or abandonment plans. Id. § 306(c)(14)-(17).

11. Like RCRA's interim status provision for TSD facilities, S. 2091 would provide interim permits until the end of 1993 for sources with pending permit applications. Id. § 306(h). Limited variances and waivers would be available, id. § 306(j), and sources with permits under certain other federal statutes would be exempt from permit requirements. Id. § 306(k).
12. States could seek from EPA a delegation of authority to administer their own discharge permit programs. Id. § 306(q). Alternatively, states could establish "control programs" in accordance with EPA guidance. A source or potential source complying with a state control program would not need a discharge permit. Id. § 301(e).
  - a. EPA's guidance documents would establish whatever minimum siting, design, installation, operating, monitoring, corrective action, and other practicable and available requirements for listed categories of sources are necessary to protect health, welfare, and the environment. Id. § 301(a)(5).
  - b. State control programs would have to require compliance with EPA new source performance standards, and would have to protect adequately both WPAs and PAPAs. Id. § 301(b) (3)-(4).
  - c. With limited exceptions, state control programs could not exempt or lessen the stringency of controls for sources by

reason of a state or local groundwater classification system or policy of differential protection. Id. § 301(b)-(5).

13. S. 2091 seeks to encourage the withdrawal of lands in sole source aquifer protection areas, WPAs, and PAPAs from agricultural uses that may cause groundwater pollution. It authorizes the Secretary of Agriculture to compensate farmers through annual rental payments for converting these lands to less intensive uses with reduced pollution potential. Id. § 308.
14. The bill requires the appointment of an Assistant EPA Administrator for Groundwater Protection, formalizes and enhances the authority of the Office of Ground Water Protection, and requires coordination of federal groundwater protection programs. Id. §§ 801 to 803.
15. The bill's enforcement and liability provisions are similar to those in CERCLA, making sources and potential sources strictly liable for monitoring, testing, analysis, and corrective action costs and for natural resource damages. Id. § 806(a). The usual panoply of civil and criminal penalties is authorized, id. § 808, as are citizen suits. Id. § 809. S. 2091 goes beyond any of the existing federal laws by imposing damage liability for individual economic losses and personal injuries caused by groundwater contamination. Id. § 403(f).

#### E. Assessment of Pending Legislation

1. The chances for enactment of legislation in the mold of H.R. 791 seem high. The real questions may be (1) the level of appropriations provided in such technical and financial assistance legislation, and (2) whether, if that level is sufficiently high and the legislation is adopted this year, President Reagan would veto it. He vetoed the 1986 and 1987 Clean Water Act bills on budgetary grounds.
2. The chances for enactment of comprehensive federal regulatory legislation like S. 2091 this year are virtually nonexistent, as Senator Durenberger himself has conceded, if only because there is not enough time left before adjournment for the election campaigns.
3. The prospects for passage of bills like S. 20 or S. 2091 in the long term are more difficult to assess, but there are significant obstacles to the comprehensive regulatory approach reflected in S. 2091. Even the proponents of more extensive federal groundwater quality regulation concede that "the economic and political situation is not right for taking those steps." CONG. REC. H 10814 (daily ed. Dec. 2, 1987) (remarks of Rep. Brown).
  - a. Effective regulation of groundwater polluting activities will require control of various non-point sources and of the location of point sources in vulnerable aquifer recharge areas and near water wells.
  - b. These kinds of controls invoke the specter of federal land use regulation, which historically has provoked strong opposition not only from state and local governments

intent upon protecting their police power authority, but also from many federal legislators fearful of federal intrusion upon states rights. The inability thus far to enact meaningful federal non-point source controls under the Clean Water Act reflects this hostility to federal land use regulation.

- c. Due to the interaction between groundwater quality and quantity issues, the states' historic powers to determine allocative rights to groundwater provide another obstacle to comprehensive legislation like S. 2091.
- d. Many supporters of H.R. 791 have felt the need to assure fellow legislators that the bill does not override state power over water resource management. See, e.g., id. at H 10816 (remarks of Rep. Dingell). The majority whip inquired of one of the bill's advocates during floor debate whether H.R. 791 was intended "to take away or lessen the States' ability to regulate ground water." Id. at 10828. Apparently unsatisfied with a simple "no," he proceeded to ask the same question three more times, only slightly changing the phrasing each time. Id.
- e. Yet, even H.R. 791 has provoked opposition on states' rights grounds. This opposition is typically expressed as a fear that technical and financial assistance legislation "will allow EPA to stick its foot in the door and eventually require" costly and intrusive regulatory programs by the states. Id. at H 10807 (remarks of Rep.

Marlenee). See also id. at H 10829 (remarks of Rep. Lightfoot) (expressing reservations that H.R. 791 may represent "the well-known camel's nose in the tent," and that if the bill "leads to a next step" of federal regulation, "we might actually degrade the current purity levels" due to federal regulators' unfamiliarity with local problems); id. at H 10807 (remarks of Rep. Marlenee) ("We all know that this is merely the first step in a series of steps which will lead to the Federal Government using its heavy hand to cram burdensome regulations ... down the throat of individual states.").

- g. More colorfully, one legislator warned of the dire consequences "when Congress turns loose the EPA brownshirts." Id.
- 4. Sentiments like these bode ill for the enactment of comprehensive legislation like S. 2091. Although the bill purports to protect state primacy in preventing groundwater pollution, see § 103(d)-(e), the Clean Air and Water Acts include similar statements. See 33 U.S.C. § 1251(b); 42 U.S.C. §§ 7401(a) (3), 7407(a).
- 5. There are at least two other barriers to the comprehensive federal regulatory approach reflected in S. 2091.
  - a. Many states have already begun to develop and implement their own comprehensive groundwater protection strategies. To the extent that federal legislation preempts those strategies (e.g., S. 2091's prohibition on differential



protection programs), it can be expected to generate hostility from state regulators.

- b. To the extent that new federal legislation, through efforts at coordination, enhances EPA's power at the expense of other federal agencies with current groundwater quality responsibilities, those agencies can be expected to fight to protect their own turf. See, e.g., H.R. REP. NO. 1136, 98th Cong., 2d Sess. 27 (1984) (opposing establishment of EPA's Office of Groundwater Policy on the ground that if federal coordination is needed, it should be provided by the Interior Department, not EPA); id. at 37 (Interior opposed EPA's Groundwater Strategy on similar grounds). Cf. 52 Fed. Reg. 48135 (Dec. 18, 1987) (Agriculture Department seeks to "minimize or obviate the need for imposing statutory or regulatory restrictions" on pesticide and fertilizer applications through adoption of its groundwater quality policy.)

6. There are pressures that cut the other way.

- a. The increasing attention being directed toward groundwater contamination and the apparently increasing severity of the problem may convince federal legislators that regulatory legislation will be popular with their constituents.
- b. The interstate nature of the problem in some areas may make state-by-state regulation inappropriate. See, e.g., CONG. REC. H 10813 (daily ed. Dec. 2, 1987) (remarks of

Rep. Glickman) (groundwater pollution problems are "not so easily addressed" by state regulation where "aquifers transcend State lines.").

- c. Uniform, minimum federal standards may be necessary to prevent the establishment of "groundwater pollution havens" in states seeking to attract business.
  - d. Finally, some segments of industry might even support federal regulation to prevent the development of numerous and conflicting state requirements. See, e.g., id. (remarks of Rep. Gunderson). Thus, for example, industry has supported federal preemption of state right-to-know laws concerning use of toxic substances. The localized nature of groundwater pollution may reduce the significance of this pressure.
7. In the short-term, the prospects for enactment of a limited intervention statute like S. 20 appear far better than for passage of a bill like S. 2091. The safest prediction, though, is one recently made by Senator Durenberger, who said that the issues raised by regulation aimed at protecting groundwater quality "will be hotly contested" and that there will be "many opportunities" to participate in the debate before these issues are finally resolved. Remarks of Feb. 15, 1988, supra.